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ANNUAL REPORT

MONTANA BEHAVIORAL HEALTH RISK SURVEY

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Montana Department of Health and Environmental Sciences
Behavioral Risk Factor Surveillance System
Chronic Disease Prevention and Health Promotion Program
Cogswell Building
Helena, MT 59620
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From the Director

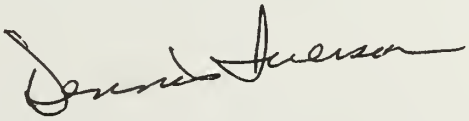
The Montana Department of Health and Environmental Sciences is pleased to present the results of the 1990 Montana Behavioral Risk Factor Survey. This third report follows our 1984-1988 and 1982 publications documenting the health practices and behaviors of Montana residents that are major contributors to illness, disability, and premature death.

The Behavior Risk Factor Survey is a statewide telephone survey of 1,188 adult residents, aged 18 and older. Montana is one of 40 states funded and supported by the Centers for Disease Control to administer the monthly telephone interviews.

The project represents an on-going surveillance by our department to assess baseline data for identifying and targeting future health problems of Montanans. The information will serve as a valuable guide in the planning of health promotion and disease prevention activities and can assist health professionals in both the public and private sector in identifying populations at risk.

It is our hope that the report will serve as a resource for you and others so we can make a concerted and informed effort to face the health challenges that threaten the health of Montana's citizens.

To Your Health,



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August, 1991

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EXECUTIVE SUMMARY

The Montana Department of Health and Environmental Sciences (DHES) entered into a cooperative agreement with the National Centers for Disease Control (CDC) in 1983 to assess behavioral risk factors of adult Montanans. Since the Behavioral Risk Factor Surveillance System (BRFSS) has been in place, a statewide telephone survey has been conducted monthly to monitor the health habits of Montanans. Each year, a total of 1,188 adult Montanans are asked BRFSS health-related questions.

Table 1 summarizes at-risk behaviors and overall prevalence of the Montana population at risk for preventable disease and premature death.[1] Between 1989 and 1990, at-risk behaviors and preventive health screenings have remained stable except for the number reporting that they had high blood cholesterol. In 1989, 23.8 percent indicated that they had high blood cholesterol compared to 13.6 percent in 1990 who reported that their blood cholesterol was greater than 200 mg/dl. This difference may be due to Montanans becoming more health conscious with respect to reducing their blood cholesterol level or it may be due to the question change between the two years of study. In 1989, the question asked if they had ever been told that their blood cholesterol was high; in 1990, the question asked what their blood cholesterol level was in numbers and those who reported it was greater than 200 mg/dl were considered at risk.

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[1]The definition of high blood pressure as measured by the BRFSS survey changed between 1989 and 1990, thus comparable data are not available between the two years of study.

EXECUTIVE SUMMARY - TABLE 1

PRIMARY AT-RISK PREVALENCES
MONTANA BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

Risk Factor	Percent At Risk 1989	Percent at Risk 1990
Sedentary Life-style	49.8%	51.9%
Seat Belt Non-usage	27.8%	28.3%
High Blood Cholesterol	23.8%	13.6%
Current Smoker	18.4%	15.6%
Hypertension	N/A	15.6%
Overweight	18.4%	20.2%
Drinking and Driving	5.0%	3.9%
Acute Drinking	18.4%	18.8%
Lack of Mammogram Screening	59.0%	59.0%

Although many Montanans have adopted healthy life-styles, not all individuals are able or willing to take steps that would reduce hazards to good health. The following statements highlight the results of the 1990 BRFSS survey:

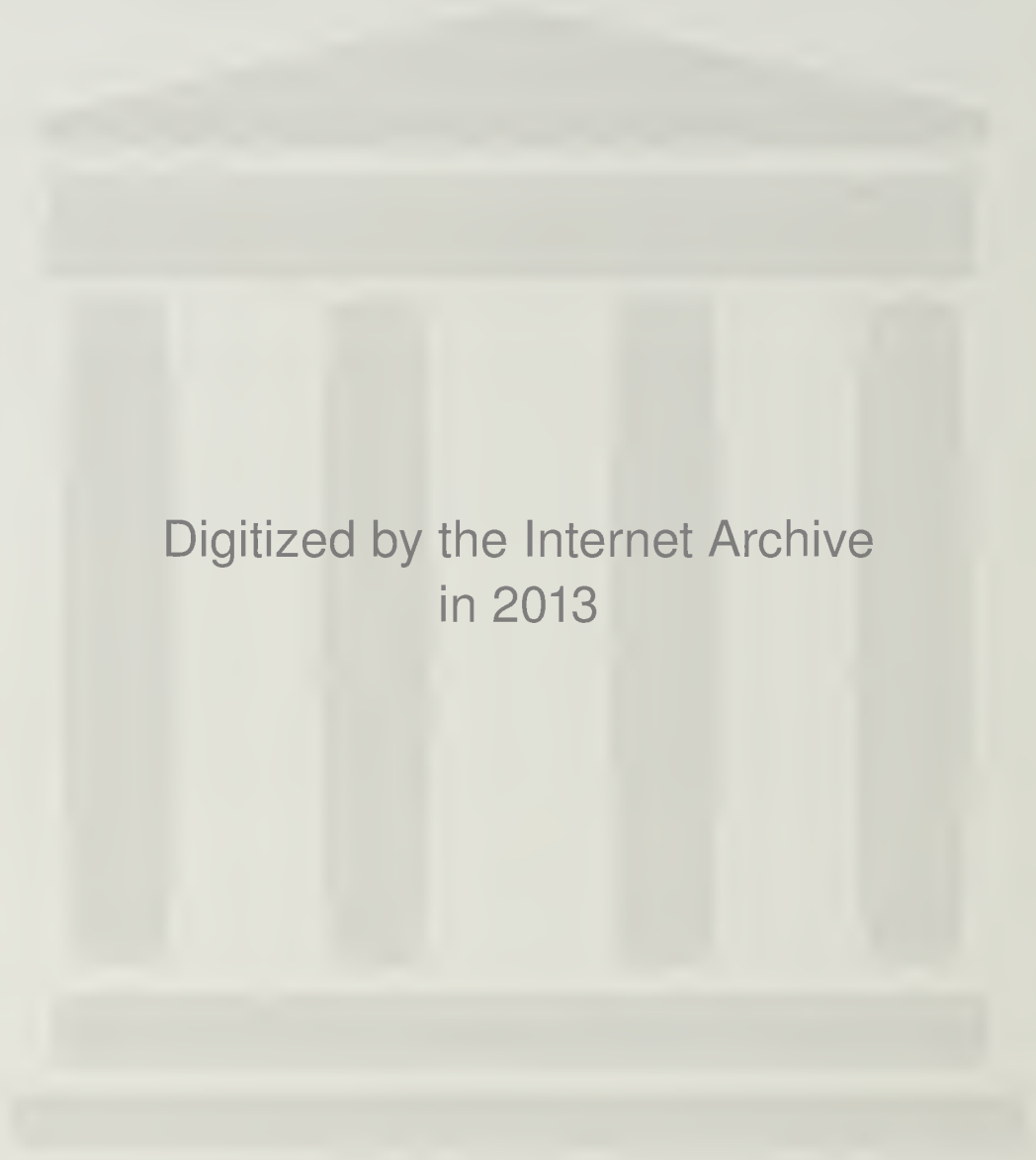
- Fifty-two percent of Montanans were at risk for a sedentary life-style.
- Twenty-eight percent "sometimes, seldom, or never" use seat belts when driving or riding in a motor vehicle.
- Fourteen percent were at risk from borderline (200 to 239 mg/dl) or high (240 mg/dl and over) blood cholesterol.
- Nineteen percent smoked cigarettes.
- Sixteen percent were at risk from hypertension.

♦ Twenty percent were estimated to be overweight based on body mass index.

♦ Nineteen percent were at risk from acute drinking (consuming five or more drinks on one occasion one or more times in the past month).

♦ Four percent have driven at least one time during the past month after having had too much to drink.

♦ Fifty-nine percent of Montana women reported never having had a mammogram screening.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I. INTRODUCTION

Recent scientific studies have found that human health can be significantly improved by adopting life-styles and behaviors which lower the risk of developing illness such as heart disease and cancer and which reduce the risk of accidental injury or death. Persons whose life-styles include moderate exercise, healthy diet, and regular health screenings while excluding smoking and excessive alcohol consumption tend to live longer and have a lower incidence of preventable diseases. Persons with healthy life-styles also often experience heightened feelings of well-being and greater satisfaction with their lives in general.

In 1982, the National Centers for Disease Control (CDC) funded eight states and the District of Columbia to conduct prevalence surveys of major behavioral risk factors[2] among the adult populations of those states. The following year, the Montana Department of Health and Environmental Sciences (DHES) entered into a cooperative agreement with CDC to determine the status of health and behavioral risk factors of adult Montanans through a statewide telephone survey (i.e., Behavioral Risk Factor Surveillance System (BRFSS)). By 1990, the number of states conducting BRFSS had grown to 44 states and the District of Columbia.

BRFSS was developed to collect data on behavioral risk factors considered highly important in contributing to the leading causes of death and

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[2]Behaviors that are associated with an increased hazard of developing avoidable illness and/or premature death.

disability in the United States. The major causes of death by risk factors for Montana are presented in Table 1.

TABLE 1

TEN LEADING CAUSES OF DEATH IN MONTANA ASSOCIATED WITH BEHAVIORAL RISK FACTORS - 1990

Cause of Death	Percent of Total Deaths	Risk Factor
Heart Disease	28.5%	Smoking, high blood pressure, elevated blood cholesterol, sedentary life-style, stress, overweight, hereditary
Cancer	23.8%	Smoking, environmental carcinogens, alcohol, diet
Stroke	7.4%	High blood pressure, smoking, elevated blood cholesterol, stress
Chronic Obstructive Pulmonary Disease	5.8%	Smoking
Accidents	5.8%	Alcohol, drug abuse, smoking (fires), seat belt non-usage
Pneumonia and Influenza	3.3%	Smoking, vaccination status
Suicide	2.4%	Alcohol and drug abuse, stress, emotional distress
Diabetes	2.3%	Overweight
Chronic Liver Disease and Cirrhosis	1.3%	Alcohol abuse
Arteriosclerosis	1.0%	Elevated blood cholesterol
Total Deaths (1990) = 6,835		

Sources: Montana Department of Health and Environmental Sciences, Vital Records and Statistics Bureau, September 1991, Helena, Montana; North Dakota State Department of Health and Consolidated Laboratories, Division of Health Promotion and Education, December 1990, Bismarck, North Dakota.

The 1990 BRFSS survey contains questions on seat belt usage, hypertension, exercise, weight control, tobacco use, smokeless tobacco use, alcohol consumption, preventive health practices, health insurance, women's health issues, Acquired Immune Deficiency Syndrome (AIDS), and injury control and child safety. This report focuses on the eight primary risk factors (smoking, seat belt non-usage, hypertension, sedentary life-style, alcohol abuse, overweight, high blood cholesterol, and lack of mammogram screening) associated with the 10 leading causes of death. Information on other aspects of the survey is available from Mr. Robert Moon, Health Services Manager, Montana Department of Health and Environmental Sciences, Helena, Montana.

Where appropriate, BRFSS Montana data in this report are compared with the national health promotion and disease prevention objectives as presented in "Healthy People 2000 - National Health Promotion and Disease Prevention Objectives" (U.S. Department of Health and Human Services, Public Health Service, September 1990). The Public Health Service document represents a national effort which involved 22 expert working groups, a consortium of almost 300 national organizations and health departments in all states, the Institute of Medicine of the National Academy of Sciences, and public review and comment from more than 10,000 individuals. "Healthy People 2000" challenges communities to translate national objectives into state and local action.

II. GOALS AND OBJECTIVES OF BRFSS

State health departments have the responsibility to plan, implement, and evaluate disease prevention programs. Many state health department programs stress health risk behavior modification such as seat belt legislation, drinking and driving campaigns, and smoking cessation. To assess the effectiveness of these programs and others in modifying health risk behaviors, the prevalence of risk factors in the population needs to be assessed and monitored. CDC developed BRFSS for use by states as a tool to assess and monitor health risk trends.

The goal of BRFSS is to provide valid data to initiate and guide health promotion and disease prevention programs. To achieve this goal, the following objectives must be met:

- Determine prevalence of personal health behaviors in Montana associated with the 10 leading causes of premature death.
- Increase public awareness that life-styles can significantly influence health and well-being.
- Monitor behavioral risk factors over time and focus on factors that are not improving.
- Assess Montana's progress in meeting the national health objectives for health promotion and disease prevention.
- Assess the impact of state legislation on behavioral risks.
- Share BRFSS data with state and local agencies involved with health-related issues.

DHES has accepted the challenge to meet these objectives to reduce the risk of preventable morbidity, mortality, and disability. To accomplish these objectives, it is crucial that the citizens of Montana and health professionals work together to accurately assess the status of health risk behaviors and to implement strategies and interventions to change unhealthy behaviors.

III. METHODOLOGY

QUESTIONNAIRE DESIGN

CDC and state BRFSS representatives evaluate and revise the BRFSS survey annually; however, issues covered in the survey have remained fairly consistent since the onset of BRFSS. The survey instrument consists of three primary sections--the core questionnaire, a set of optional CDC standard questions (modules), and state-specific questions. Inclusion of selected standard CDC modules and state-specific questions began in 1988 and 1983, respectively.

The core questionnaire consists of a standard series of questions asked by interviewers from all BRFSS participating states. Topics in the 1990 core questionnaire included behaviors related to seat belt usage, physical activity, blood pressure, diet, body weight, smoking, alcohol consumption, and use of preventive health services. Respondents also were asked to provide demographic information such as age, gender, race, marital status, household income, employment status, and educational level.

Standard modules are included at the end of the core questionnaire. Since 1988, a variety of topics in the module questionnaires has been made available for use by participating states. In Montana, modules which have been used include questions on AIDS knowledge and awareness, smokeless tobacco, dietary fat, and radon gas.

State-specific questions were developed by the Highway Traffic Safety Division of the Montana Department of Justice and have been included in the survey since 1983. The questions are targeted at determining Montanans' attitudes toward driving under the influence (DUI) and laws pertaining to DUI.

SAMPLING PROCESS

A CDC-modified version of the "Waksberg Random Digit Three Stage Cluster Design" was used to generate a sample size of 1,188 from Montana households with telephones. In the first stage, a list of telephone numbers was randomly generated based on the population distribution within three-digit prefixes in Montana. The second stage involved the "screening" of 33 primary telephone numbers prior to the interviewing session. If the primary numbers were residential, working numbers, they were accepted as primary sampling units (PSU) or clusters. Each PSU consisted of three telephone numbers (the primary telephone number and two numbers with different last two digits of the suffix), thus resulting in a monthly sample of 99 randomly selected telephone numbers. In the final stage, one adult 18 years of age or older per household was selected to participate in the survey. One respondent per household was randomly selected by means of computer-generated numbers.

INTERVIEW PROCESS

DHES contracted with Dodge Data Systems, Inc. of Helena, Montana, to conduct the interviews using the CDC computer-assisted telephone interviewing (CATI) system. Interviews commenced on or after the second

Wednesday of each month and continued until 99 interviews were completed. Interviews were conducted during daytime and evening hours on Monday through Friday, and during daytime hours on weekends to ensure that selected individuals within the sample had the opportunity to participate in the survey. At least five telephone calls were placed at different times of the day and the evening on weekdays and weekends before a sample number was considered a "no answer."

CDC procedures were used to conduct interviews and to replace telephone numbers not resulting in completed interviews. If a selected respondent were not available, an appointment was made to complete the interview at a time acceptable to the respondent. If a selected respondent were not available during the interview period or refused to participate, no other member of that household was interviewed. Following a refusal, a telephone number within the PSU was randomly generated and the interview process reinitiated with a new telephone number.

When interviews with 99 respondents were completed, a routine of computer programs was used to summarize data. Diskettes were submitted to CDC in Atlanta, where CDC staff then edited, corrected, and compiled state data into a yearly file, made available to participating states.

SURVEY LIMITATIONS

Surveys that require self-reporting have limitations and should be interpreted with caution. Respondents may have the tendency to under-report behaviors that are socially undesirable, unhealthy, or illegal

(high alcohol consumption, smoking, drinking and driving, or seat belt non-usage) and over-report behaviors which are socially desirable (amount of exercise, low body weight, or regular health screenings). The accuracy of self-reported information also is affected by the ability of respondents to fully recall past behavior or health screening results.

Telephone surveys exclude households without telephones, which may result in a biased survey population due to under-representation of certain segments of the population. An estimated 97 percent of Montana households have at least one residential telephone (U.S. Bureau of the Census; Chris Warren, pers. comm., August 26, 1991). The 3 percent of the population without telephones may represent a population segment at high risk for preventable diseases associated with low socioeconomic status. A comprehensive evaluation by CDC is currently underway to examine issues associated with possible BRFSS limitations.

IV. PRIMARY BEHAVIORAL RISK FACTORS

The following sections describe the results of the 1990 BRFSS survey. Information presented in these sections reflects results of the survey for Montanans who are "at risk" due to their health-related life-styles. In addition, data presented in the text and on tables have been "weighted." Even with random sample selection procedures, a sample survey often will not be truly representative of the population. CDC adjusted the data based on Bureau of the Census estimated 1988 data to compensate for differences between the survey sample and the state population according to age and gender. The weighted data, therefore, is representative of the Montana adult population, while the unweighted data applies only to the survey participants.

SEDENTARY LIFE-STYLE

Overview

Physical well-being and vitality have been shown to improve with vigorous, regular exercise. Regular exercise also can help prevent or control coronary heart disease, hypertension, non-insulin-dependent diabetes, osteoporosis, obesity, and mental health problems. Since coronary heart disease is the leading cause of death and disability, the role of including physical activity in our daily lives is of particular importance.

Sedentary Life-style in Montana

Respondents were classified as having a sedentary life-style if they reported no physical activity or reported engaging in one or more leisure-time physical activities for less than 20 minutes three or more times per week. Based on this definition, 52 percent of Montanans have a sedentary life-style (Table 2). Sedentary life-style was more prevalent among males (53 percent) than females (51 percent).

Sixty-four percent of Montanans in the less than $10,000 annual income category were at risk from sedentary life-style, while only 42 percent in the $50,000 or more category were at risk. Sedentary life-style was less prevalent among students (39 percent) and more common among individuals unemployed for more than one year (68 percent). The incidence of sedentary life-style was higher for those who did not complete the ninth grade (70 percent).

Comparison with 1989 Survey Results

In 1990, 52 percent of Montanans were reported to have a sedentary life-style, 2 percent higher than in 1989. The incidence of sedentary life-style was slightly higher for males than females in both years. With respect to income, a greater percentage of Montanans with annual household incomes of less than $10,000 were at risk from sedentary life-style in 1990 than in 1989 (64 percent and 52 percent, respectively).

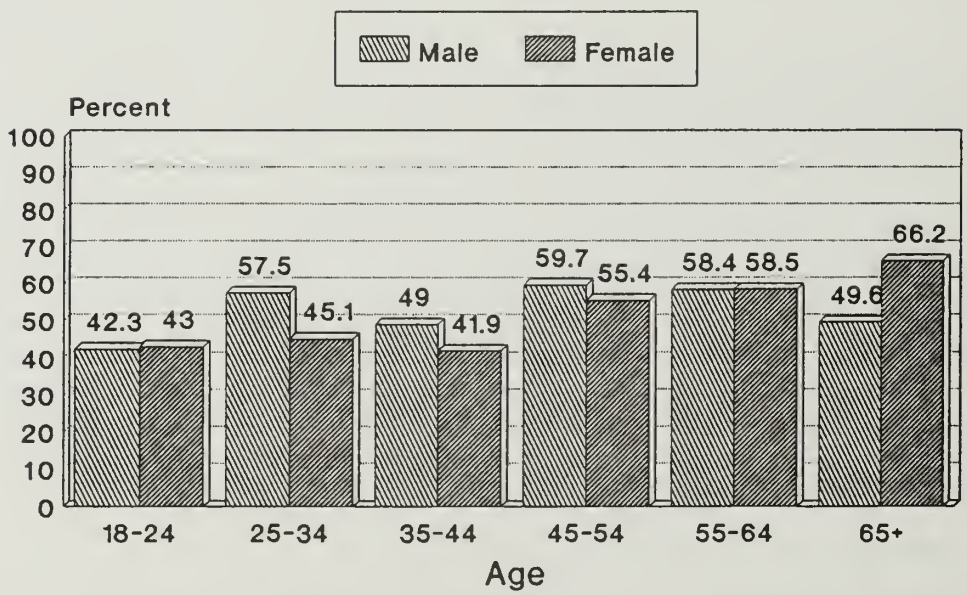
TABLE 2

MONTANANS AT RISK FROM SEDENTARY LIFE-STYLE

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	21	42.3%	21	43.0%	42	42.7%
25 to 34 Years	55	57.5%	63	45.1%	118	51.4%
35 to 44 Years	58	49.0%	64	41.9%	122	45.6%
45 to 54 Years	43	59.7%	48	55.4%	91	57.6%
55 to 64 Years	37	58.4%	43	58.5%	80	58.5%
65+ Years	41	49.6%	132	66.2%	173	59.0%
Total	255	52.8%	371	51.1%	626	51.9%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation



Sedentary Lifestyle

Year 2000 Nationwide Health Objectives

According to the U.S. Department of Health and Human Services, Public Health Service (September 1990), in 1985, 22 percent of Americans 18 years of age and older engaged in leisure-time physical activities for at least 30 minutes five or more times a week, and 12 percent were physically active seven or more times a week. The risk reduction objective of the Public Health Service is to increase to at least 30 percent the proportion of people 6 years of age and older who engage in regular (preferably every day), light to moderate physical activity for at least 30 minutes a day. Fifty percent of Montanans 18 years of age and older engage in one or more physical activities for less than 20 minutes three or more times per week. BRFSS data are not available for persons under 18 years of age.

SEAT BELT NON-USAGE

Overview

Motor vehicle accidents are the leading cause of deaths among the United States population 35 years old and under. The National Highway Traffic Safety Administration reports that using a lap-shoulder safety belt reduces a person's chance of serious injury or death by an estimated 50 percent and by 35 percent if only a lap belt is used. The U.S. Department of Health and Human Services, Public Health Service (September 1990), reports that "an estimated 4,500 lives were saved in 1988 as a result of the 45-percent seat belt use rate obtained nationwide, and 3,800 of those were in states that have mandatory laws."

Montanans have increased seat belt usage four-fold since the early 1980s, when usage was an estimated 14 percent. On October 1, 1987, a mandatory seat belt law was enacted and penalties for non-usage became effective on January 1, 1988. Enactment of the law increased Montana's seat belt usage to 56 percent by early 1988. Currently, seat belt usage among Montanans fluctuates between 61 and 64 percent (Montana Department of Justice, Highway Traffic Safety Division, no date).

Seat Belt Non-usage in Montana

Twenty-eight percent of Montanans "sometimes, seldom, or never" use seat belts when driving or riding in a motor vehicle (Table 3). Non-usage of seat belts was more often reported by males (34 percent) than females (23 percent). Montanans with an annual household income of less than $10,000 represented the largest group at risk from seat belt non-usage.

Comparison with 1989 Survey Results

Lack of seat belt usage has remained stable between 1989 and 1990; in 1989, 27.8 percent of Montanans reported sometimes, seldom, or never using a seat belt when driving or riding in a motor vehicle compared with 28.3 percent in 1990. Observation data obtained by the Montana Department of Justice, Highway Traffic Safety Division, on seat belt usage is fairly consistent with the BRFSS data, which tends to validate the self-reported BRFSS data.

TABLE 3

MONTANANS AT RISK FROM SEAT BELT NON- USAGE

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	27	56.3%	18	36.6%	45	46.3%
25 to 34 Years	34	32.6%	29	21.7%	63	27.3%
35 to 44 Years	34	26.5%	25	15.2%	59	21.0%
45 to 54 Years	22	28.1%	19	22.0%	41	25.0%
55 to 64 Years	26	43.4%	22	32.5%	48	37.8%
65+ Years	21	25.2%	36	18.3%	57	21.3%
Total	164	33.8%	149	23.0%	313	28.3%

Note: Percents are based on weighted data.

Year 2000 Nationwide Health Objectives

Thirty-three states and the District of Columbia had mandatory seat belt laws by 1989. The U.S. Public Health Service's objective by year 2000 is to implement a mandatory seat belt law in all states. Montana has already met this objective through enactment of a mandatory seat belt law in 1987.

HIGH BLOOD CHOLESTEROL

Overview

Coronary heart disease causes an estimated one-half million deaths in the United States each year (U.S. Department of Health and Human Services, October 1988). In Montana, heart disease accounted for 1,947 deaths (243.7 per 100,000 population) in 1990. Lowering blood cholesterol has been demonstrated to be an effective means of reducing the risk of coronary heart disease. Although high blood cholesterol can be hereditary, dietary treatment or drug therapy can help reduce blood cholesterol levels for some people.

High Blood Cholesterol in Montana

Blood serum cholesterol levels are divided into 3 categories--desirable (less than 200 mg/dl), borderline high (200 to 239 mg/dl), and high (240 mg/dl and over). Approximately 14 percent of Montanans were at risk from borderline or high blood cholesterol, of which slightly more were females than males (Table 4). Montanans earning $35,000 to $50,000 annually had a prevalence of blood cholesterol levels in excess of 200 mg/dl more often than those in other income categories.

TABLE 4

MONTANANS AT RISK FROM HIGH BLOOD CHOLESTEROL

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	0	0.0%	0	0.0%	0	0.0%
25 to 34 Years	2	1.7%	14	9.5%	16	5.5%
35 to 44 Years	24	21.6%	18	11.1%	42	16.5%
45 to 54 Years	19	27.3%	16	17.0%	35	22.2%
55 to 64 Years	7	14.2%	17	24.4%	24	19.4%
65+ Years	13	17.9%	48	26.1%	61	22.5%
Total	65	12.9%	113	14.3%	178	13.6%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation

Blood Cholesterol Level

It should be noted that the largest proportion of Montanans (72 percent) either have not had their blood cholesterol checked or did not know their blood cholesterol level in numbers. Therefore, the percentage of Montanans who are at risk from borderline or high blood cholesterol may even be higher than 14 percent.

Comparison with 1989 Survey Results

The BRFSS 1989 survey did not ask respondents to provide their blood cholesterol level in numbers; however, the 1989 respondents were asked if they had ever been told that their blood cholesterol was high. Twenty-four percent reported they had been told their cholesterol was high and 16 percent were under a doctor's advice to reduce their cholesterol.

Year 2000 Nationwide Health Objectives

Since high blood cholesterol is associated with a higher incidence of coronary heart disease, reducing the prevalence of high blood cholesterol among the adult population is expected to decrease the risk for coronary heart disease. The year 2000 objective of the U.S. Department of Health and Human Services (September 1990) is to reduce the prevalence of high blood cholesterol ($\geq$ 240 mg/dl) to no more than 20 percent of the adult population. As previously discussed, since it is unknown whether 72 percent of Montanans have borderline or high blood cholesterol levels, it cannot be concluded whether this objective has been met in Montana.

CIGARETTE SMOKING

Overview

Cigarette smoking is the single most preventable cause of death and disability from cancer and other diseases. The national average death rate is about twice as high for heavy smokers between the ages of 25 and 65 than it is for non-smokers. Although an estimated 38 million Americans have stopped smoking and almost one-half of all adults who ever smoked have stopped, approximately 50 million Americans continue to smoke (U.S. Department of Health and Human Services, Public Health Service, October 5, 1990).

Each day at least 3,000 American teenagers start smoking. An adolescent health survey conducted in Montana during the 1988-89 school year showed that 45 percent of 7th grade, 59 percent of 9th grade, and 61 percent of 12th students had experimented with cigarettes (Healthy Mothers, Healthy Babies, March 1990).

Cigarette Smoking in Montana

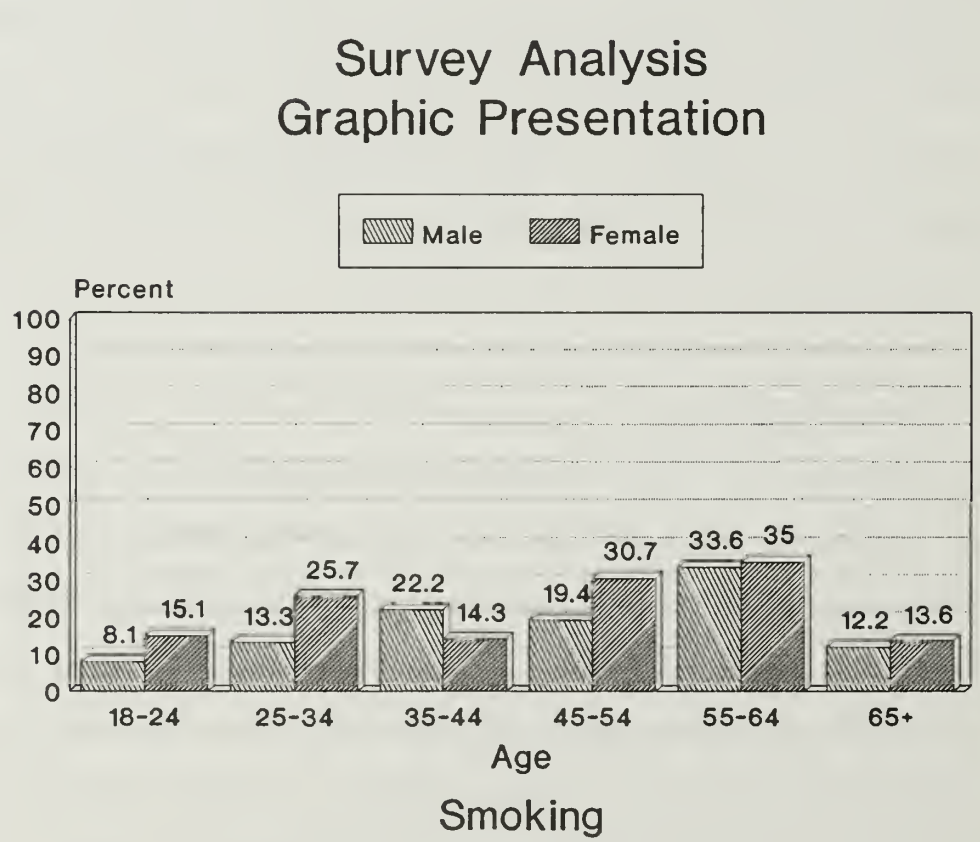
A current smoker is defined as a person who has smoked at least 100 cigarettes in his or her lifetime and who currently smokes. Nineteen percent of Montanans are current smokers, with the percentage slightly higher for females than males (Table 5). Lower income (less than $20,000 annually) Montanans were more often at risk from smoking than those in higher income categories, and a higher percentage of unemployed Montanans were more at risk than those who were employed, retired, students, or homemakers.

TABLE 5

MONTANANS AT RISK FROM CIGARETTE SMOKING

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	5	8.1%	8	15.1%	13	11.6%
25 to 34 Years	14	13.3%	39	25.7%	53	19.3%
35 to 44 Years	26	22.2%	24	14.3%	50	18.4%
45 to 54 Years	16	19.4%	29	30.7%	45	25.1%
55 to 64 Years	22	33.6%	27	35.0%	49	34.3%
65+ Years	10	12.2%	27	13.6%	37	13.0%
Total	93	17.3%	154	21.4%	247	19.4%

Note: Percents are based on weighted data.



Comparison with 1989 Survey Results

There was no change in percentage of Montanans at risk from smoking between 1989 and 1990. In 1989, however, the percentage of female and male smokers was almost equal, while in 1990, the percentage of females was slightly higher.

Year 2000 Nationwide Health Objectives

The year 2000 risk reduction objective of the U.S. Department of Health and Human Services is to reduce the prevalence of cigarette smoking among people aged 20 and older to 15 percent or less. Prevalence of cigarette smoking among Montanans aged 18 years and older is currently higher (19 percent) than the year 2000 objective.

HIGH BLOOD PRESSURE

Overview

Elevated blood pressure can lead to cardiovascular diseases such as coronary heart disease, hypertensive heart disease, and stroke. People with high blood pressure have a risk three to four times higher for developing coronary heart disease and as much as seven times higher for suffering a stroke than people with normal blood pressure (U.S. Department of Health and Human Services, Public Health Service, September 1990).

High Blood Pressure in Montana

High blood pressure is defined as being equal to or greater than 140 mm Hg systolic and/or 90 mm Hg diastolic. In this survey, at risk from hypertension refers to respondents who reported they were told more than

once that their blood pressure was high or who were on medication to control their blood pressure. It should be noted that the data include only those who were aware they have high blood pressure. The survey results, therefore, exclude an undetermined at-risk population who have hypertension, but are unaware of it. The real prevalence of hypertension among Montanans may be higher than the data in this report indicates.

Approximately 16 percent of Montanans 18 years old and older were at risk from hypertension (16 percent female and 15 percent male). As shown in Table 6, the age group most at risk from hypertension was 65 years and older. People in lower income categories (less than $10,000 annually) were more likely to be at risk from hypertension than those in higher income brackets, and retirees were more at risk than those who were employed, unemployed, students, or homemakers.

Comparison with 1989 Survey Results

Comparable data between 1989 and 1990 for Montanans who have been told more than once that their blood pressure was high and who are on medication are not available. Data for Montanans who have ever been told they have high blood pressure (i.e., not including those who are on medication for high blood pressure) indicate no change between 1989 and 1990.

Year 2000 Nationwide Health Objectives

The year 2000 health objective of the U.S. Department of Health and Human Services is to increase to at least 50 percent the proportion of people

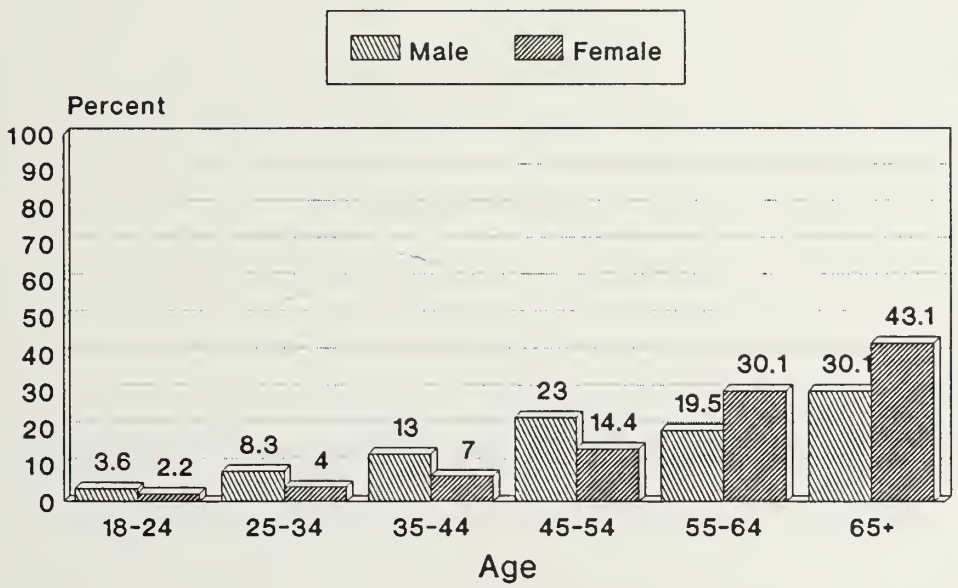
TABLE 6

MONTANANS AT RISK FROM HIGH BLOOD PRESSURE

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	2	3.6%	1	2.2%	3	2.9%
25 to 34 Years	9	8.3%	6	4.0%	15	6.2%
35 to 44 Years	14	13.0%	11	7.0%	25	10.1%
45 to 54 Years	19	23.0%	13	14.4%	32	18.7%
55 to 64 Years	13	19.5%	20	30.1%	33	24.9%
65+ Years	23	30.1%	88	43.1%	111	37.4%
Total	80	15.2%	139	16.1%	219	15.6%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation



Hypertension

with high blood pressure whose blood pressure is under control. Data to measure this objective were not collected for the 1990 BRFSS survey.

OVERWEIGHT

Overview

Overweight persons are at increased risk from heart disease, cancer, diabetes, digestive diseases, and cardiovascular disease. The risk of these diseases increases as the person's weight increases. The primary factors influencing obesity are heredity, caloric intake, metabolic rate, and exercise. Although hereditary predisposition to obesity and low metabolic rate cannot be influenced by behavior, overeating and under-activity can be modified to prevent or reduce risk of being overweight.

Two common methods used to estimate obesity are relative weight and body mass index (BMI). Relative weight is equal to actual body weight divided by desirable weight for an individual with a medium frame; BMI is body weight in kilograms divided by height in meters squared. Because BMI is considered by experts to be a more precise measurement of obesity, it was used as the measure in this study.

Overweight in Montana

Twenty percent of Montanans are estimated to be overweight based on BMI. The self-reported weights indicate that 19 percent of females and 22 percent of males are overweight (Table 7). No significant correlation was observed between being overweight and income level. Overweight based on

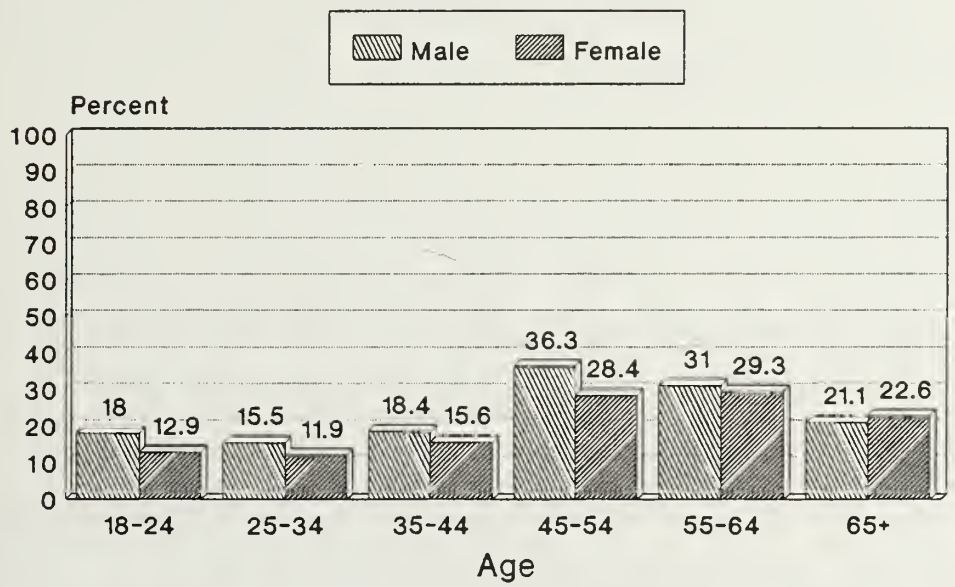
TABLE 7

MONTANANS AT RISK FROM BEING OVERWEIGHT

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	7	18.0%	7	12.9%	14	15.4%
25 to 34 Years	15	15.5%	17	11.9%	32	13.7%
35 to 44 Years	23	18.4%	25	15.6%	48	17.0%
45 to 54 Years	24	36.3%	22	28.4%	46	32.4%
55 to 64 Years	19	31.0%	19	29.3%	38	30.1%
65+ Years	18	21.1%	48	22.6%	66	22.0%
Total	106	21.7%	138	18.8%	244	20.2%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation



Overweight

BMI was more prevalent among retirees (26 percent) and least prevalent among students (4 percent).

Comparison with 1989 Survey Results

In 1989, 18 percent of Montanans were overweight based on BMI, slightly lower than the 1990 figure of 20 percent. Females were more often at risk from being overweight than males in 1989, while males were more often at risk than females in 1990.

Year 2000 Nationwide Health Objectives

The year 2000 health objective for obesity states that no more than 20 percent people aged 20 and older should be overweight and no more than 15 percent of adolescents aged 12 through 19 should be overweight. Although data for Montana are not available in these specific age categories, Montana is close to the objective for incidence of overweight in the adult population (aged 18 and older).

ALCOHOL ABUSE

Overview

Excessive alcohol consumption contributes to cirrhosis of the liver, motor vehicle and other accidents, suicides, homicides, and some types of cancer. Alcohol intake during pregnancy also has been found to cause birth defects in 1,400 to 2,000 babies annually (U.S. Department of Health and Human Services, Public Health Service, September 1990).

Traffic accidents involving drinking historically have been and continue to be a major problem in Montana. Montana previously ranked as one of the highest nationally in fatality crashes involving alcohol per capita, but now ranks below the national average. Changes in the DUI law, agencies working more closely with judges, and educating Montana school children about the effects of drinking have all contributed to a significant decrease (63 percent in 1983 to 47 percent in 1989) in alcohol-related vehicle fatalities (Montana Department of Justice, Highway Traffic Safety Division, no date).

Alcohol Abuse in Montana

Table 8 presents data on Montanans who have driven at least one time during the past month after having had too much to drink. Approximately 4 percent of Montanans fall into this category (5 percent of males and 2 percent of females). Individuals in the 18 to 24 age category were more at-risk from drinking and driving than those in other age categories.

Approximately 19 percent of Montanans were classified as at risk from acute drinking (consuming five or more drinks on one occasion one or more times in the past month). Males were more than twice as likely to be at risk from acute drinking than females (Table 9).

Comparison with 1989 Survey Results

The rate of Montanans at risk for drinking and driving was slightly lower (4 percent) in 1990 than in 1989 (5 percent). Males were at considerably higher risk than females in both years.

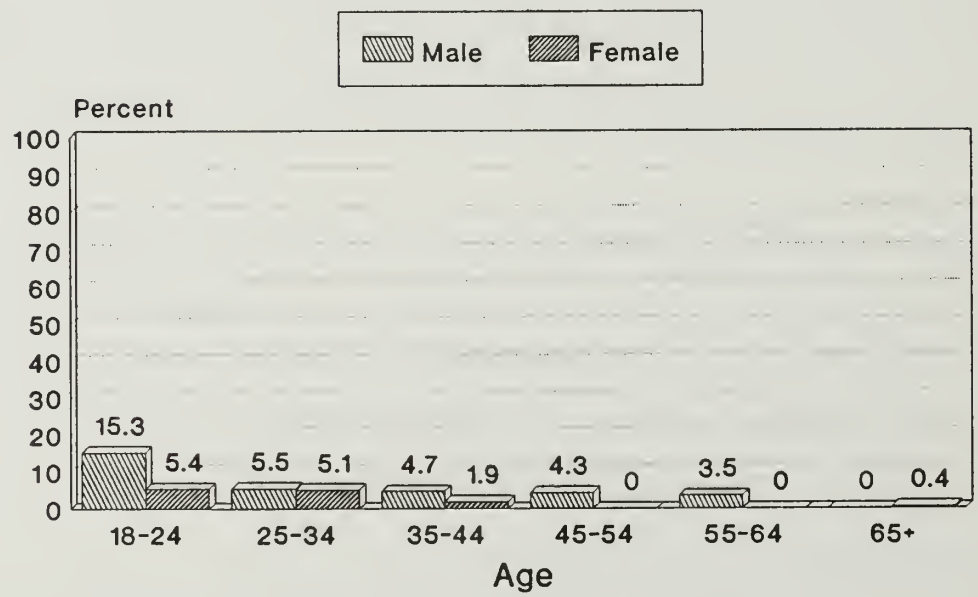
TABLE 8

MONTANANS AT RISK FROM DRINKING AND DRIVING

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	7	15.3%	3	5.4%	10	10.3%
25 to 34 Years	7	5.5%	8	5.1%	15	5.3%
35 to 44 Years	7	4.7%	4	1.9%	11	3.3%
45 to 54 Years	3	4.3%	0	0.0%	3	2.2%
55 to 64 Years	2	3.5%	0	0.0%	2	1.7%
65+ Years	0	0.0%	1	0.4%	1	0.2%
Total	26	5.4%	16	2.4%	42	3.9%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation



Drinking and Driving

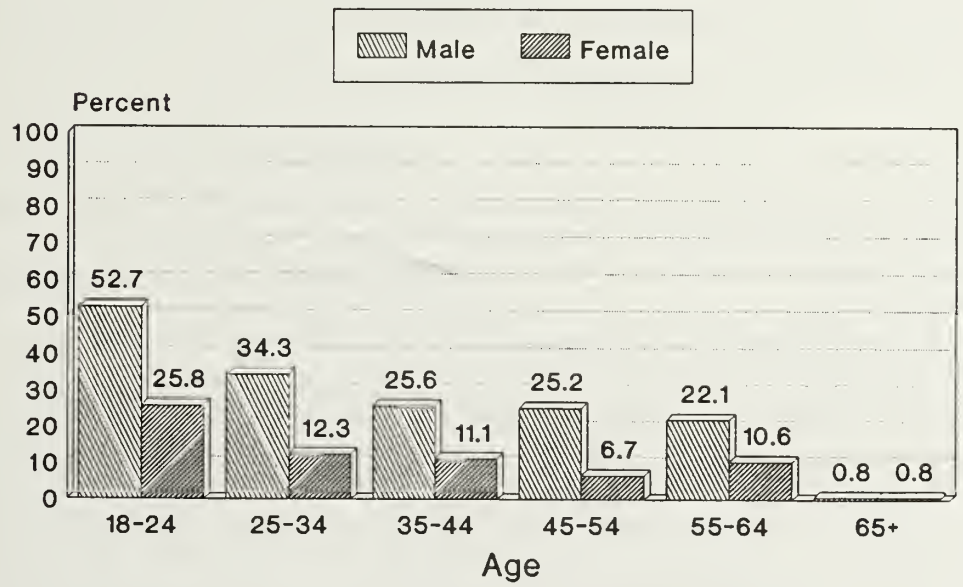
TABLE 9

MONTANANS AT RISK FROM ACUTE DRINKING

Age	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	28	52.7%	14	25.8%	42	39.1%
25 to 34 Years	38	34.3%	19	12.3%	57	23.5%
35 to 44 Years	31	25.6%	21	11.1%	52	18.6%
45 to 54 Years	22	25.2%	6	6.7%	28	16.0%
55 to 64 Years	14	22.1%	8	10.6%	22	16.2%
65+ Years	1	0.8%	2	0.8%	3	0.8%
Total	134	27.2%	70	10.7%	204	18.8%

Note: Percents are based on weighted data

Survey Analysis
Graphic Presentation



Acute Drinking

Data on acute drinking were not provided by CDC in 1989, so comparison is not possible.

Year 2000 Nationwide Health Objectives

The U.S. Public Health Service year 2000 health objectives do not include a target for alcohol consumption as defined by 1990 BRFSS.

MAMMOGRAM HEALTH SCREENING

Overview

Mammography, an X-ray study of the breast, is an effective screening method to detect cancer and allows treatment at an early stage of the disease. Breast cancer is one of the leading causes of cancer death among Montana women with about 1 out of 10 women projected to develop this disease. In 1989, 31 percent of malignant cancer cases among Montana women were breast cancer (Montana Department of Health and Environmental Sciences, Vital Records and Statistics Bureau, May 1991).

Although the cause of breast cancer has not been determined, some risk factors include:

- Being older than 40 years of age.
- Family history of breast cancer or benign breast disease.
- High socioeconomic status.
- Exposure to high doses of radiation.
- Menarche beginning at an early age.
- Menopause starting at a late age.
- Birth of first child at a late age of the mother.

Mammogram Health Screening in Montana

Forty-one percent of female Montanans reported they had a mammogram sometime in their lives (Table 10). Females between the ages of 45 and 54 were most likely to have had a mammogram (64 percent), closely followed by those in the 55 to 64 year category (61 percent). Females in the 18 to 24 year category were least likely to have had a mammogram (11 percent). Females with annual household incomes below $50,000 were less likely to have had a mammogram than those with incomes over $50,000.

Sixty-three percent had their mammogram within the past year, while 11 percent had their last mammogram more than five years ago. Forty-eight percent reported that the most important reason that they did not have a mammogram within the last year was because it was not recommended; 25 percent felt it was not needed; and 10 percent could not afford it or had no insurance to cover the cost. Eighty-two percent of female Montanans indicated the reason they had their last mammogram was because it was included in a routine checkup.

Comparison with 1989 Survey Results

Data from 1989 and 1990 show that 41 percent of females have had a mammogram and 63 percent have had the last mammogram within the past year. A higher proportion of women in 1990 (48 percent) reported not having a mammogram because it was not recommended than in 1989 (31 percent). Routine checkup was the primary reason why women had mammograms in both years.

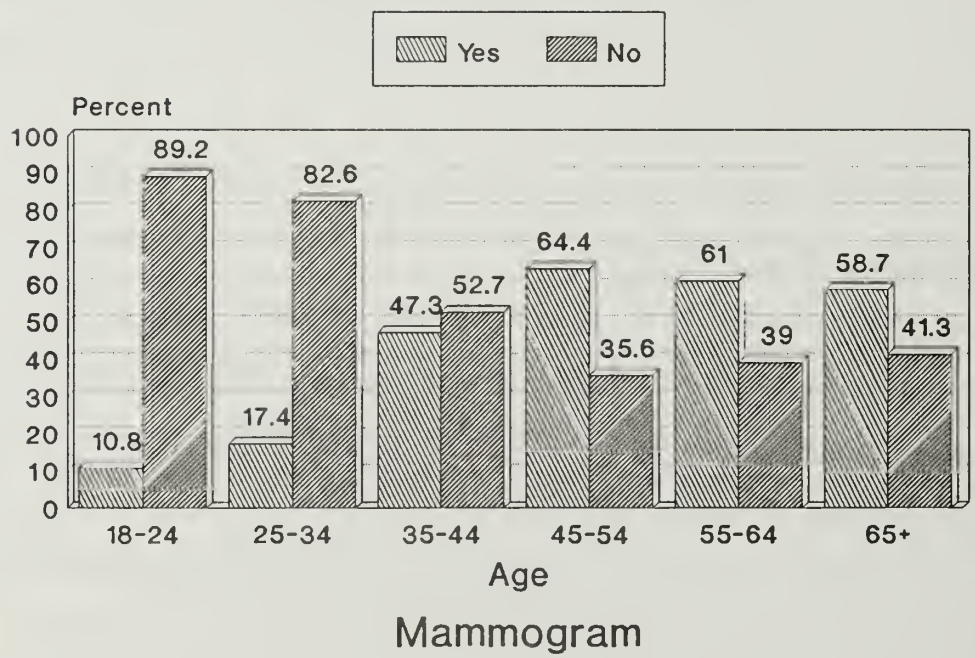
TABLE 10

MONTANANS AT RISK FROM LACK OF MAMMOGRAM SCREENING

Age	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
18 to 24 Years	5	10.8%	47	89.2%	52	100.0%
25 to 34 Years	27	17.4%	118	82.6%	145	100.0%
35 to 44 Years	71	47.3%	85	52.7%	156	100.0%
45 to 54 Years	55	64.4%	30	35.6%	85	100.0%
55 to 64 Years	44	61.0%	30	39.0%	74	100.0%
65+ Years	112	58.7%	81	41.3%	193	100.0%
Total	314	41.0%	391	59.0%	705	100.0%

Note: Percents are based on weighted data.

Survey Analysis
Graphic Presentation



Mammogram

Year 2000 Nationwide Health Objectives

The health objective for year 2000 is to increase to at least 80 percent the proportion of women 40 years of age and older who have ever received a clinical breast examination and mammogram. The objective also is to increase to at least 60 percent the proportion of women 50 years and older who have received a mammogram within the preceding 1 to 2 years. It appears from the 1990 BRFSS data that Montana has more than met the objective for women 50 years and older receiving a mammogram within the preceding 1 or 2 years; however, Montana has not met the objective of 80 percent of women 40 years and older ever receiving a mammogram.

V. SAMPLE DEMOGRAPHIC CHARACTERISTICS

A comparison of demographic characteristics of 1990 BRFSS respondents and 1990 Census data is presented in Table 11. BRFSS weighted percents illustrated in Table 11 have been adjusted to compensate for differences in gender and age between the BRFSS sample and the 1988 Census estimated population. Distribution of the BRFSS sample and Census demographic characteristics is nearly identical, except the sample overrepresented young people and married individuals and underrepresented persons who have never been married.

Slightly over two-thirds of the BRFSS respondents indicated that they were married and 13 percent reported they had never been married, while the Census data reflected that 60 percent of the population were married and 22 percent had never been married. Most of this difference is because 1990 Census data are applicable to Montanans 15 years of age and older, while the sample data were collected from persons 18 years of age and older. Census data (1990) for marital status of persons 18 years old and over will not be available until 1992.

TABLE 11

DEMOGRAPHIC CHARACTERISTICS SUMMARY

Demographic Characteristic	1990 BRFSS Data		1990 Census Data	
	Raw Data	Weighted Percent	Number	Percent
Age				
18 to 24 Years	101	13.2%	70,011	12.1%
25 to 34 Years	247	25.3%	123,070	21.3%
35 to 44 Years	276	20.3%	126,756	22.0%
45 to 54 Years	159	12.9%	82,306	14.3%
55 to 64 Years	135	10.7%	68,321	11.8%
65 Years & Over	270	17.5%	106,497	18.5%
Gender (18+ Years Old)				
Male	483	49.3%	281,481	48.8%
Female	705	50.7%	295,480	51.2%
Race (18+ Years Old)				
White	1,131	94.4%	542,595	94.0%
Non-white	57	5.6%	34,366	6.0%
Marital Status				
Married	698	68.7%	365,708	59.8%
Divorced	154	8.2%	56,907	9.3%
Widowed	169	7.8%	44,216	7.2%
Separated	21	1.1%	8,132	1.3%
Never Married	133	12.9%	136,569	22.3%
Unmarried Couple	11	1.1%	N/A	N/A

N/A = Not available.

Source: U.S. Department of Commerce, Bureau of the Census, 1990 Census of Population, STF1A.

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REFERENCES

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Personal Communications

Warren, Chris, US West, Helena, Montana. Personal communication August 26, 1991) with Linda Priest, Dodge Data Systems, Helena, Montana.

APPENDIX A

LIST OF PREPARERS

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